

Welcome to STN International! Enter x:x

LOGINID:SSSPTA1623PAZ

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

\* \* \* \* \* Welcome to STN International \* \* \* \* \*

NEWS	1		Web Page URLs for STN Seminar Schedule - N. America
NEWS	2		"Ask CAS" for self-help around the clock
NEWS	3	JUL 20	Powerful new interactive analysis and visualization software, STN AnaVist, now available
NEWS	4	AUG 11	STN AnaVist workshops to be held in North America
NEWS	5	AUG 30	CA/CAPLUS - Increased access to 19th century research documents
NEWS	6	AUG 30	CASREACT - Enhanced with displayable reaction conditions
NEWS	7	SEP 09	ACD predicted properties enhanced in REGISTRY/ZREGISTRY
NEWS	8	OCT 03	MATHDI removed from STN
NEWS	9	OCT 04	CA/CAPLUS-Canadian Intellectual Property Office (CIPO) added to core patent offices
NEWS	10	OCT 06	STN AnaVist workshops to be held in North America
NEWS	11	OCT 13	New CAS Information Use Policies Effective October 17, 2005
NEWS	12	OCT 17	STN(R) AnaVist(TM), Version 1.01, allows the export/download of CAPLUS documents for use in third-party analysis and visualization tools

NEWS EXPRESS JUNE 13 CURRENT WINDOWS VERSION IS V8.0, CURRENT  
MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 13 JUNE 2005

NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS INTER	General Internet Information
NEWS LOGIN	Welcome Banner and News Items
NEWS PHONE	Direct Dial and Telecommunication Network Access to STN
NEWS WWW	CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

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\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 11:18:49 ON 27 OCT 2005

=> filereg

THIS COMMAND NOT AVAILABLE IN THE CURRENT FILE

Some commands only work in certain files. For example, the EXPAND command can only be used to look at the index in a file which has an index. Enter "HELP COMMANDS" at an arrow prompt (=>) for a list of commands which can be used in this file.

=> 53980-88-4

THIS COMMAND NOT AVAILABLE IN THE CURRENT FILE

Some commands only work in certain files. For example, the EXPAND command can only be used to look at the index in a file which has an

index. Enter "HELP COMMANDS" at an arrow prompt (=>) for a list of commands which can be used in this file.

=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.42

0.42

FILE 'REGISTRY' ENTERED AT 11:19:55 ON 27 OCT 2005  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
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STRUCTURE FILE UPDATES: 26 OCT 2005 HIGHEST RN 866186-08-5  
DICTIONARY FILE UPDATES: 26 OCT 2005 HIGHEST RN 866186-08-5

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

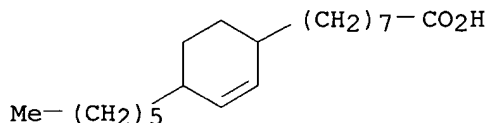
=> 53980-88-4

L1 1 53980-88-4  
(53980-88-4/RN)

=> d l1

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 53980-88-4 REGISTRY  
ED Entered STN: 16 Nov 1984  
CN 2-Cyclohexene-1-octanoic acid, 5(or 6)-carboxy-4-hexyl- (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN DA 1550  
CN DiACID 1550  
CN DiACID C21  
CN Westvaco 1550  
CN Westvaco DiACID 1550

CN Westvaco WV 1550  
 MF C21 H36 O4  
 CI IDS, COM  
 LC STN Files: CA, CAPLUS, CHEMLIST, CSCHEM, IFICDB, IFIPAT, IFIUDB,  
 TOXCENTER, USPAT2, USPATFULL  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
 (\*\*Enter CHEMLIST File for up-to-date regulatory information)



D1-CO2H

77 REFERENCES IN FILE CA (1907 TO DATE)  
 25 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 77 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

2.27

2.69

FILE 'CAPLUS' ENTERED AT 11:20:10 ON 27 OCT 2005

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FILE COVERS 1907 - 27 Oct 2005 VOL 143 ISS 18

FILE LAST UPDATED: 26 Oct 2005 (20051026/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>

=> 11/prep

77 L1

3376692 PREP/RL

L2

15 L1/PREP

(L1 (L) PREP/RL)

=> d 12 10-15 ti

L2 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Preparation of quaternary ammonium compounds for use as fabric softeners

L2 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Cationic emulsifiers and their use in making aqueous bituminous emulsions and pavement-sealing emulsion-aggregate slurries

L2 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Lubricants

L2 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Dicarboxylic acids

L2 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Dicarboxylic acid from linoleic acid

L2 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Dicarboxylic acid from linoleic acid-containing fatty acid mixtures

=> d 12 13-15 ti fbib abs

L2 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Dicarboxylic acids  
 AN 1976:4485 CAPLUS  
 DN 84:4485  
 TI Dicarboxylic acids  
 IN Ward, Benjamin F.  
 PA Westvaco Corp., USA  
 SO Can., 11 pp.  
 CODEN: CAXXA4  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CA 971577	A1	19750722	CA 1972-154600	19721023
				CA 1972-154600	A 19721023

GI For diagram(s), see printed CA Issue.  
 AB On heating a mixture of distilled tall oil fatty acids with  $\text{CH}_2\text{:CHCO}_2\text{H}$  at  $250^\circ$  in the presence of iodine the linoleic acid portion of the fatty acids underwent addition reaction to give the dicarboxylic acid I (x = 2, 3) and linoleic free tall oil fatty acids. I was separated from the reaction mixture by fractional distillation and was further purified via distillation of its di-Me ester.

L2 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Dicarboxylic acid from linoleic acid  
 AN 1975:458269 CAPLUS  
 DN 83:58269  
 TI Dicarboxylic acid from linoleic acid  
 IN Ward, Benjamin Franklin  
 PA Westvaco Corp., USA  
 SO Brit., 6 pp.  
 CODEN: BRXXAA  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 1373316	A	19741106	GB 1972-48767	19721023

GI For diagram(s), see printed CA Issue.  
 AB The title decarboxylic acid I (R = 2- or 3-CO<sub>2</sub>H) was prepared from the linoleic acid portion of distilled tall oil fatty acids by treating the mixture with CH<sub>2</sub>:CHCO<sub>2</sub>H in the presence of iodine; I was separated from the fatty acids (now linoleic acid-free) by fractional distillation. Thus, treatment of a tall oil-derived fatty acid mixture containing 41.4 weight % linoleic acid with CH<sub>2</sub>:CHCO<sub>2</sub>H and 0.15 weight % iodine 0.75 hr at 250° gave a mixture containing 42 weight % I and 0.6 weight % linoleic acid.

L2 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Dicarboxylic acid from linoleic acid-containing fatty acid mixtures  
 AN 1974:569214 CAPLUS  
 DN 81:169214  
 TI Dicarboxylic acid from linoleic acid-containing fatty acid mixtures  
 IN Ward, Benjamin F.  
 PA Westvaco Corp.  
 SO Ger. Offen., 12 pp.  
 CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2406401	A1	19740829	DE 1974-2406401	19740211
	DE 2406401	B2	19790920		
	DE 2406401	C3	19800529		
				US 1973-331957	A 19730212
	CA 1016539	A1	19770830	CA 1974-192034	19740207
				US 1973-331957	A 19730212
	GB 1421527	A	19760121	GB 1974-6223	19740211
				US 1973-331957	A 19730212
	JP 49134620	A2	19741225	JP 1974-17481	19740212
				US 1973-331957	A 19730212

GI For diagram(s), see printed CA Issue.

AB The dicarboxylic acid I (R = R<sub>1</sub> = H or CO<sub>2</sub>H) was prepared by reaction of tall oil fatty acid mixts. containing conjugated and nonconjugated linoleic acid (II) with CH<sub>2</sub>:CHCO<sub>2</sub>H (III) in the presence of SO<sub>2</sub> or Pd/C for 1-3 hr at .apprx.220-50°. Thus, a distilled tall oil fatty acid mixture containing 32% nonconjugated and 10% conjugated II was heated with III in the presence of 0.5% Pd/C for 2 hr at 252° to give 30% I at II conversion 100%. This method allows the separation of fatty acids into an oleic acid-like and a dicarboxylic acid portion.

=> logoff hold

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

14.01

16.70

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

-2.19

-2.19

SESSION WILL BE HELD FOR 60 MINUTES

STN INTERNATIONAL SESSION SUSPENDED AT 11:23:01 ON 27 OCT 2005

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:SSSPTA1623PAZ

PASSWORD:

\* \* \* \* \* RECONNECTED TO STN INTERNATIONAL \* \* \* \* \*  
SESSION RESUMED IN FILE 'CAPLUS' AT 11:49:40 ON 27 OCT 2005  
FILE 'CAPLUS' ENTERED AT 11:49:40 ON 27 OCT 2005  
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COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	14.01	16.70

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-2.19	-2.19

=> file reg

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	14.46	17.15

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-2.19	-2.19

FILE 'REGISTRY' ENTERED AT 11:49:58 ON 27 OCT 2005  
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STRUCTURE FILE UPDATES: 26 OCT 2005 HIGHEST RN 866186-08-5  
DICTIONARY FILE UPDATES: 26 OCT 2005 HIGHEST RN 866186-08-5

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS  
for details.

REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> e 4-cyclohexylbutanoic acid/cn

E1	1	4-CYCLOHEXYLBIPHENYL/CN
E2	1	4-CYCLOHEXYLBROMOBENZENE/CN
E3	1 -->	4-CYCLOHEXYLBUTANOIC ACID/CN
E4	1	4-CYCLOHEXYLBUTANOIC ACID HYDRAZIDE/CN
E5	1	4-CYCLOHEXYLBUTANOIC ACID N'-(TERT-BUTOXYCARBONYL)HYDRAZIDE/ CN
E6	1	4-CYCLOHEXYLBUTANOL/CN
E7	1	4-CYCLOHEXYLBUTANOYL CHLORIDE/CN
E8	1	4-CYCLOHEXYLBUTYL 3-AMINOCROTONATE/CN
E9	1	4-CYCLOHEXYLBUTYL 4-PYRIDINECARBOXYLATE/CN
E10	1	4-CYCLOHEXYLBUTYL ISONICOTINATE/CN
E11	1	4-CYCLOHEXYLBUTYL METHANESULFONATE/CN
E12	1	4-CYCLOHEXYLBUTYL P-NITROBENZENESULFONATE/CN

=> \e3

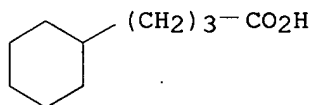
L3 3423 \E3  
(E3)

=> e3

L4 1 "4-CYCLOHEXYLBUTANOIC ACID"/CN

=> d 14

L4 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 4441-63-8 REGISTRY  
ED Entered STN: 16 Nov 1984  
CN Cyclohexanebutanoic acid (9CI) (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Cyclohexanebutyric acid (6CI, 7CI, 8CI)  
OTHER NAMES:  
CN **4-Cyclohexylbutanoic acid**  
CN 4-Cyclohexylbutyric acid  
CN NSC 2158  
CN NSC 406925  
FS 3D CONCORD  
MF C10 H18 O2  
CI COM  
LC STN Files: ANABSTR, AQUIRE, BEILSTEIN\*, BIOSIS, CA, CAOLD, CAPLUS,  
CASREACT, CHEMCATS, CHEMLIST, CSCHEM, GMELIN\*, HODOC\*, MEDLINE,  
MSDS-OHS, SPECINFO, SYNTHLINE, TOXCENTER, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)  
Other Sources: EINECS\*\*, NDSL\*\*, TSCA\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

174 REFERENCES IN FILE CA (1907 TO DATE)  
6 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
174 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
8 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
11.47	28.62

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
0.00	-2.19

CA SUBSCRIBER PRICE

FILE 'CAPLUS' ENTERED AT 11:50:50 ON 27 OCT 2005

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FILE COVERS 1907 - 27 Oct 2005 VOL 143 ISS 18

FILE LAST UPDATED: 26 Oct 2005 (20051026/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>

=> l4/prep

174 L4  
3376692 PREP/RL  
L5 10 L4/PREP  
(L4 (L) PREP/RL)

=> d 15 5-10 ti

L5 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

TI Metallacyclic carboxylates of nickel: synthons for the carbon-carbon bond formation via cross-coupling

L5 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

TI Preparation of bicycloheptane-substituted diamide and its congener prostaglandin analogs as cardiovascular agents

L5 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

TI Preparation of bisthioamide-7-oxabicycloheptane prostaglandin analogs as antithrombotics

L5 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

TI Preparation of N-(5,6-epoxy-7-oxabicycloheptane)diamide prostaglandin analogs as cardiovascular agents

L5 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

TI Preparation and formulation of 7-oxabicyclo[2.2.1]heptane-substituted diamides and their congener prostaglandin analogs for treatment of



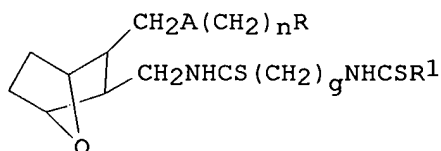
thrombotic disease

L5 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN  
TI Free radical addition of the diethyl ester of malonic acid to unsaturated hydrocarbons of the naphthenic series

=> d 15 7-10 ti fbib abs

L5 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN  
TI Preparation of bisthioamide-7-oxabicycloheptane prostaglandin analogs as antithrombotics  
AN 1988:492639 CAPLUS  
DN 109:92639  
TI Preparation of bisthioamide-7-oxabicycloheptane prostaglandin analogs as antithrombotics  
IN Nakane, Masami; Reid, Joyce  
PA E. R. Squibb and Sons, Inc., USA  
SO U.S., 21 pp.  
CODEN: USXXAM  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4738978	A	19880419	US 1986-928947 US 1986-928947	19861110 19861110
OS	CASREACT 109:92639; MARPAT 109:92639				
GI					



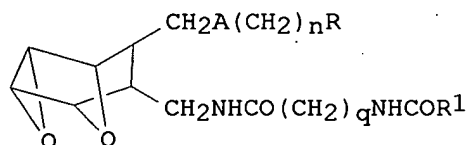
I

AB Title compds. I (A = CH:CH, CH<sub>2</sub>CH<sub>2</sub>; R = CO<sub>2</sub>H, alkoxy-carbonyl, tetrazolyl; R<sub>1</sub> = H, alkyl, alkenyl, alkynyl, aryl, arylalkyl, alkoxy, aryloxy, arylsulfonyloxy, etc.; n = 1-5; q = 1-12) their stereoisomers and salts, which are cardiovascular agents, useful, e.g., in the treatment of thrombotic disease (no data), are prepared tert-Bu [1S-[1 $\alpha$ ,2 $\beta$ (5Z),3 $\beta$ ,4 $\alpha$ ]]-7-[3-[[[1-thioxo-2-[(1-thioxoheptyl)amino]ethyl]amino]methyl]-7-oxabicyclo[2.2.1]hept-2-yl]-5-heptenoate was prepared in 5 steps from Me [1S-[1 $\alpha$ ,2 $\beta$ (5Z),3 $\beta$ ,4 $\alpha$ ]]-7-[3-(hydroxymethyl)-7-oxabicyclo[2.2.1]hept-2-yl]-5-heptenoate.

L5 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN  
TI Preparation of N-(5,6-epoxy-7-oxabicycloheptane)diamide prostaglandin analogs as cardiovascular agents  
AN 1988:473226 CAPLUS  
DN 109:73226  
TI Preparation of N-(5,6-epoxy-7-oxabicycloheptane)diamide prostaglandin analogs as cardiovascular agents  
IN Das, Jagabandhu  
PA E. R. Squibb and Sons, Inc., USA  
SO U.S., 20 pp.  
CODEN: USXXAM

DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4734426	A	19880329	US 1986-911178 US 1986-911178	19860924 19860924
OS	CASREACT 109:73226; MARPAT 109:73226				
GI					



AB Title compds. I (A = CH:CH, CH<sub>2</sub>CH<sub>2</sub>; n = 1-5; R = HO<sub>2</sub>C, alkanoyloxy, alkali metal carboxylate salt, polyhydroxyamine carboxylate salt, tetrazol-2-yl; q = 1-12; R<sub>1</sub> = H, alkyl, alkenyl, alkynyl, aryl, arylalkyl, alkoxy, aryloxy, alkyl S(O)<sub>n</sub>; n = 0-2; etc.) their esters, stereoisomers, and salts, cardiovascular agents useful in treatment of thrombotic disease (no data), were prepared Me [1 $\alpha$ , 2 $\beta$ (5Z), 3 $\beta$ , 4 $\alpha$ , 5 $\alpha$ , 6.a lpha.]-7[5,6-epoxy-3-(aminomethyl)-7-oxabicyclo[2.2.1]hept-2-yl]-5-heptenoate prepared in 13 steps from 7-oxabicyclo[2.2.1]-5-heptene-2,3-dimethanol was reacted at 0° with N-hexanoylglycine in THF and carbonyldiimidazole to give Me [1 $\alpha$ , 2 $\beta$ (5Z), 3 $\beta$ , 4 $\alpha$ , 5.a lpha., 6 $\alpha$ ]-[5,6-epoxy-3-[[[(1-oxohexyl)amino]acetyl]amino]methyl]-7-oxabicyclo[2.2.1]hept-2-yl]-5-heptanoate.

L5 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

TI Preparation and formulation of 7-oxabicyclo[2.2.1]heptane-substituted diamides and their congener prostaglandin analogs for treatment of thrombotic disease

AN 1987:196118 CAPLUS

DN 106:196118

TI Preparation and formulation of 7-oxabicyclo[2.2.1]heptane-substituted diamides and their congener prostaglandin analogs for treatment of thrombotic disease

IN Reid, Joyce Ann; Nakane, Masami

PA E. R. Squibb and Sons, Inc., USA

SO Eur. Pat. Appl., 139 pp.

CODEN: EPXXDW

DT Patent

LA English

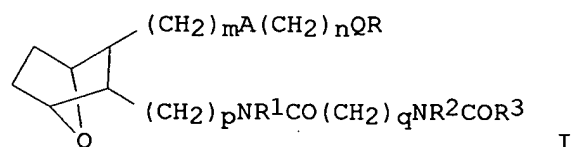
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 207684	A2	19870107	EP 1986-304675	19860617
	EP 207684	A3	19870429		
	EP 207684	B1	19941123		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
				US 1985-750948	A 19850701
				US 1986-853788	A 19860418
	US 4663336	A	19870505	US 1986-853788	19860418
				US 1985-750948	A2 19850701
	AU 8658715	A1	19870108	AU 1986-58715	19860613
	AU 603058	B2	19901108		
				US 1985-750948	A 19850701

ZA 8604485	A	19870225	US 1986-853788	A	19860418
			ZA 1986-4485		19860616
ES 556530	A1	19880216	US 1985-750948	A	19850701
			ES 1986-556530		19860624
			US 1985-750948	A	19850701
IL 79210	A1	19910310	US 1986-853788	A	19860418
			IL 1986-79210		19860624
			US 1985-750948	A	19850701
DK 8603106	A	19870102	US 1986-853788	A	19860418
DK 162528	B	19911111	DK 1986-3106		19860630
DK 162528	C	19920330			
			US 1985-750948	A	19850701
NO 8602635	A	19870102	US 1986-853788	A	19860418
NO 168038	B	19910930	NO 1986-2635		19860630
NO 168038	C	19920108			
			US 1985-750948	A	19850701
CN 86105664	A	19870218	US 1986-853788	A	19860418
CN 1009645	B	19900919	CN 1986-105664		19860630
			US 1985-750948	A	19850701
HU 45041	A2	19880530	US 1986-853788	A	19860418
HU 196779	B	19890130	HU 1986-2725		19860630
			US 1985-750948	A	19850701
FI 8602797	A	19870102	US 1986-853788	A	19860418
FI 93218	B	19941130	FI 1986-2797		19860701
FI 93218	C	19950310			
			US 1985-750948	A	19850701
JP 62063589	A2	19870320	US 1986-853788	A	19860418
JP 07103125	B4	19951108	JP 1986-155905		19860701
			US 1985-750948	A	19850701
DD 259192	A5	19880817	US 1986-853788	A	19860418
			DD 1986-292020		19860701
CA 1284643	A1	19910604	US 1985-750948	A	19850701
			CA 1986-512924		19860702
			US 1985-750948	A	19850701
ES 557754	A1	19871201	US 1986-853788	A	19860418
			ES 1987-557754		19870923
			US 1985-750948	A	19850701
ES 557748	A1	19880301	US 1986-853788	A	19860418
			ES 1987-557748		19870923
			US 1985-750948	A	19850701
ES 557750	A1	19880301	US 1986-853788	A	19860418
			ES 1987-557750		19870923
			US 1985-750948	A	19850701
ES 557746	A1	19880316	US 1986-853788	A	19860418
			ES 1987-557746		19870923
			US 1985-750948	A	19850701
ES 557747	A1	19880316	US 1986-853788	A	19860418
			ES 1987-557747		19870923
			US 1985-750948	A	19850701
ES 557751	A1	19880316	US 1986-853788	A	19860418
			ES 1987-557751		19870923
			US 1985-750948	A	19850701
ES 557752	A1	19880316	US 1986-853788	A	19860418
			ES 1987-557752		19870923
			US 1985-750948	A	19850701
			US 1986-853788	A	19860418

ES 557753	A1	19880316	ES 1987-557753	19870923
			US 1985-750948	A 19850701
			US 1986-853788	A 19860418
ES 557749	A1	19890401	ES 1987-557749	19870923
ES 557749	A5	19890503		
			US 1985-750948	A 19850701
			US 1986-853788	A 19860418

OS CASREACT 106:196118  
GI



AB The title compds. [I; A = CH:CH, CH<sub>2</sub>CH<sub>2</sub>; Q = CH:CH, CH<sub>2</sub>, CH(OH), halo-substituted CH<sub>2</sub>, bond; R = alkoxy carbonyl, CH<sub>2</sub>OH, tetrazolyl, CONR<sub>4</sub>R<sub>5</sub>, CO<sub>2</sub>H or an alkali metal or polyhydroxyamine salt; R<sub>1</sub> = H, alkyl; R<sub>2</sub> = H, alkyl; R<sub>3</sub> = H, alkyl, alkenyl, alkynyl, aryl, substituted sulfonyl, etc.; R<sub>4</sub>, R<sub>5</sub> = H, alkyl, OH, alkoxy, aryl; m = 0-4; n = 1-5; p = 1-4; q = 1-12], cardiovascular agents useful, e.g., in treatment of thrombotic diseases (no data), were prepared by many methods. Me [1S-[1β,2α(5Z),3α,4β]]-7-[3-(tosyloxymethyl)-7-oxabicyclo[2.2.1]hept-2-yl]-5-heptenoate, prepared by tosylation of the hydroxymethyl derivative, was subjected to a Gabriel synthesis, followed by hydrolysis of the corresponding phthalimide to the aminomethyl derivative which was coupled with N-hexanoylglycine to give [1S-[1β,2α(5Z),3α,4β]]-I (A = CH:CH; Q = bond; R = MeO<sub>2</sub>C; R<sub>1</sub> = R<sub>2</sub> = H; R<sub>3</sub> = pentyl; m = 1; n = 3; p = q = 1).

L5 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Free radical addition of the diethyl ester of malonic acid to unsaturated hydrocarbons of the naphthenic series  
 AN 1971:448381 CAPLUS  
 DN 75:48381  
 TI Free radical addition of the diethyl ester of malonic acid to unsaturated hydrocarbons of the naphthenic series  
 AU Sadykh-Zade, S. I.; Dzhalilov, R. A.  
 CS Sumgait. Fil., INKhP, Sumgait, USSR  
 SO Azerbaidzhanskii Khimicheskii Zhurnal (1970), (4), 77-80  
 CODEN: AZKZAU; ISSN: 0005-2531  
 DT Journal  
 LA Russian  
 AB Di-Et malonate (I) was heated 6 hr at 150-5°, a mixture of I, 1-vinyl-3-cyclohexene, and tert-Bu<sub>2</sub>O<sub>2</sub> added, and the solution heated to yield di-Et (3-cyclohexen-1-ylethyl)malonate (II). Similarly prepared were 5 malonate esters. II was heated with alc. KOH, acidified with 10% H<sub>2</sub>SO<sub>4</sub>, and distilled to give γ-3-cyclohexen-1-ylbutyric acid.

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ENTRY	SESSION
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NEWS 14	OCT 27	DIOGENES content streamlined
NEWS 15	OCT 27	EPFULL enhanced with additional content
NEWS EXPRESS	JUNE 13	CURRENT WINDOWS VERSION IS V8.0, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 13 JUNE 2005
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\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

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<http://www.cas.org/ONLINE/UG/regprops.html>

=> e 6-phenyl-3,5-hexadienoic acid/cn

E1	1	6-PHENYL-3,4-PYRIDINEDICARBOXYLIC ACID/CN
E2	1	6-PHENYL-3,5-HEXADIEN-2-ONE/CN
E3	1 -->	6-PHENYL-3,5-HEXADIENOIC ACID/CN
E4	1	6-PHENYL-3,5-HEXADIENOYLHYDROXAMIC ACID/CN
E5	1	6-PHENYL-3,5-HEXADIYN-2-OL/CN
E6	1	6-PHENYL-3,5-HEXADIYN-2-ONE/CN
E7	1	6-PHENYL-3,5-HEXADIYNYL ACRYLATE/CN
E8	1	6-PHENYL-3,5-HEXADIYNYL METHACRYLATE/CN
E9	1	6-PHENYL-3,9-DITHIA-6-AZAUNDECANE/CN
E10	1	6-PHENYL-3-((4,5,6,7-TETRAHYDRO-1H-INDOL-2-YL)METHYLENE)-1,3-DIHYDROINDOL-2-ONE/CN
E11	1	6-PHENYL-3-((4,5,7-TRIFLUOROBENZOTHAZOL-2-YL)METHYL)INDOLE-N-ACETIC ACID/CN
E12	1	6-PHENYL-3-(3-((7-PROPYL-3-(TRIFLUOROMETHYL)-1,2-BENZISOXAZOL-6-YL)OXY)PROPYL)DIHYDROPYRIMIDINE-2,4(1H,3H)-DIONE/CN

=> e3

L1 1 "6-PHENYL-3,5-HEXADIENOIC ACID"/CN

=> d 11

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2005 ACS on STN  
RN 91962-73-1 REGISTRY  
ED Entered STN: 16 Nov 1984  
CN 3,5-Hexadienoic acid, 6-phenyl- (6CI, 7CI, 9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN **6-Phenyl-3,5-hexadienoic acid**  
FS 3D CONCORD  
MF C12 H12 O2  
LC STN Files: BEILSTEIN\*, CA, CAOLD, CAPLUS, TOXCENTER, USPAT2, USPATFULL  
(\*File contains numerically searchable property data)

Ph-CH=CH-CH=CH-CH<sub>2</sub>-CO<sub>2</sub>H

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

7 REFERENCES IN FILE CA (1907 TO DATE)  
7 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> file caplus

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=> 11

L2 7 L1

=> d 12 1-7 ti

L2 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Preparation of arylalkanoylhydroxamic acids as histone deacetylase inhibitors for treatment of cancer, hematological disorders, and genetic related metabolic disorders

L2 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Preparation of arylalkanoic acids and hydroxamic acids as histone deacetylase inhibitors for treatment of cancer, hematological disorders, and genetic related metabolic disorders

L2 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Preparation of arylalkanoic acids and hydroxamic acids as histone deacetylase inhibitors for treatment of cancer, hematological disorders, and genetic related metabolic disorders

L2 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Preparation of acetyloxymethyl esters and their therapeutic applications

L2 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Dienoic acids and phenols. A novel cyclization reaction

L2 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Studies on unsaturated carboxylic compounds. Tautomeric relationships in pentadiene systems activated by the carboxyl group

L2 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Heterocyclics. XV. The synthesis of thiophene polyenes

=> d 12 4-7 ti fbib abs

L2 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN  
 TI Preparation of acetyloxymethyl esters and their therapeutic applications  
 AN 2002:486175 CAPLUS  
 DN 137:63074  
 TI Preparation of acetyloxymethyl esters and their therapeutic applications  
 IN Ian-Hargest, Hsuan-Yin; Weich, Norbert L.  
 PA Beacon Laboratories, Inc., USA  
 SO Eur. Pat. Appl., 30 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1216984	A1	20020626	EP 2001-310692	20011220
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2002161045	A1	20021031	US 2000-742727	A 20001221
	US 6720445	B2	20040413	US 2000-742727	20001221
	CA 2363755	AA	20020621	CA 2001-2363755	20011126
				US 2000-742727	A 20001221
	US 2002119996	A1	20020829	US 2002-55898	20020128
	US 6699902	B2	20040302		
				US 2000-742727	A3 20001221
OS	MARPAT 137:63074				
AB	Novel acetyloxymethyl esters, RCOOCH <sub>2</sub> OCOMe [I; R = (un)substituted alkenyl, (un)substituted alkynyl, a cis or trans retinoyl, Z(X)o-(R1)p-(R2)q; Z = H, (un)substituted aryl, heteroaryl, cycloalkyl, alkoxy; n = 3, >3; X = S, O, CO, CH <sub>2</sub> ; R1 = S, O, CH:CH, C.tplbond.C; R2 =				



CH<sub>2</sub>, CH:CH, C.tplbond.C; o, p, q = same or different each between 0-10, but when o = 0 and R1 or R2 = CH:CH or C.tplbond.C, Z is not H or alkoxy], were prepd for treating an illness, including cancer, hemol. disorders and inherited metabolic disorders, and treating or ameliorating other conditions. I are effective in the inhibition of histone deacetylase. Thus, cinnamoyloxymethyl acetate (II) was prepared by the reaction of cinnamic acid and chloromethyl acetate. II showed IC<sub>50</sub> = 12.5 μM against PC-3 prostate breast cancer cells.

RE.CNT 24      THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2      ANSWER 5 OF 7    CAPLUS    COPYRIGHT 2005 ACS on STN

TI      Dienoic acids and phenols. A novel cyclization reaction

AN      1964:16233    CAPLUS

DN      60:16233

OREF    60:2808b-d

TI      Dienoic acids and phenols. A novel cyclization reaction

AU      Chiusoli, G. P.; Agnes, G.

CS      Montecatini Co., Novara, Italy

SO      Proc. Chem. Soc. (1963), (Oct), 310

DT      Journal

LA      Unavailable

AB      Refluxing ω-alkylhexadienoic acids with solns. of NaOAc or KOAc in Ac<sub>2</sub>O, preferably diluted with AcOH, provided a very efficient method of cyclization to aryl acetates. o-Cresol was obtained from hepta-2,5(or 3,5)dienoic acid (yield 65%); 1-hydroxybiphenyl (70%) from 6-phenylhexa-2,5(or 3,5)-dienoic acid; o-neopentylphenol (m. 37-8°, 83%) from 8,8-dimethylnona-2,5(or 3,5)-dienoic acid, and saligenin, mainly as polymer, from 7-acetoxyhepta-2,5(or 3,5)dienoic acid. The reactivities of the 2,5- and 3,5-tautomers were similar, isomerization of the 2,5- to the 3,5-dienoic form being catalyzed by bases. Cyclization was prevented if isomerization to the 2,4-form took place first, as in the case of hexadienoic and 5-methylhexadienoic acid. Acid cyclization required an electron shift towards the 6-position. Aspirin was obtained from hepta-3,5-diene-1,7-dioic acid by basic (61%) and by acidic (87%) cyclization.

L2      ANSWER 6 OF 7    CAPLUS    COPYRIGHT 2005 ACS on STN

TI      Studies on unsaturated carboxylic compounds. Tautomeric relationships in pentadiene systems activated by the carboxyl group

AN      1961:117984    CAPLUS

DN      55:117984

OREF    55:22107g-i,22108a-d

TI      Studies on unsaturated carboxylic compounds. Tautomeric relationships in pentadiene systems activated by the carboxyl group

AU      Chiusoli, Gianpaolo; Merzoni, Sergio

CS      Donegani Research Inst., Novara, Italy

SO      Chimica e l'Industria (Milan, Italy) (1961), 43, 255-9

CODEN: CINMAB; ISSN: 0009-4315

DT      Journal

LA      Unavailable

AB      Me 2-cis-5-trans-hexadienoate (10 g.), b<sub>28</sub> 62-3°, n<sub>20D</sub> 1.4481, d<sub>20</sub> 0.9435, was mixed with 40 ml. 30% NH<sub>3</sub>, the mixture left 24 hrs. at 20-5°, the precipitate (7.5 g.) filtered off, dried, and crystallized from C<sub>6</sub>H<sub>6</sub> to give 3,5-hexadienamide (I), m. 101-2°, 223-4 μμ (log ε 4.38). I (22 g.) stored 24 hrs. with 100 ml. 10% HCl in MeOH, treated with an equal volume of saturated CaCl<sub>2</sub>, the organic layer dried (CaCl<sub>2</sub>), and distilled gave Me 3,5-hexadienoate (II), b<sub>30</sub> 71-2°, n<sub>20D</sub> 1.4670, d<sub>20</sub> 0.9518, 222 μμ (log ε 4.39), 0.7 g. of which treated with 0.53 g. maleic anhydride (III) gave an adduct, m. 97-9°, no absorption between 350 and 220 μμ. Ozonization of 6 g. II in AcOMe at

-30° then hydrogenation over Pd-CaCO<sub>3</sub> at 3 atmospheric produced CH<sub>2</sub>O and (CO<sub>2</sub>H)<sub>2</sub>. Hydrolysis of I with cold 10% HCl gave 3,5-hexadienoic acid (IV), which formed an adduct, m. 148-50°, with III. Reflux of II or IV with 20% NaOH led almost quant. to sorbic acid. Me 2,5-heptadienoate (V), b<sub>15</sub> 67-8°, n<sub>20D</sub> 1.4560, d<sub>20</sub> 0.9358, left 8 hrs. at 20-5° with 50 ml. 30% NH<sub>3</sub> gave 8.5 g. 3,5-heptadienamide (VI), m. 138-9°, λ 229 mμ (log ε 4.40), transformed into Me 3,5-heptadienoate (VII), b<sub>20</sub> 83-4°, n<sub>20D</sub> 1.4765, d<sub>20</sub> 0.9462, 228 mμ (log ε 4.35), with HCl in MeOH; adduct of VII with III m. 87-9°. Hydrolysis of VI with cold HCl, as well as that of V and VII by refluxing 1 hr. with 20% NaOH gave 3,5-heptadienoic acid (VIII), m. 55° (petr. ether), partial hydrogenation of which, then oxidation with KMnO<sub>4</sub> and esterification with MeOH gave AcOMe, EtCO<sub>2</sub>Me, PrCO<sub>2</sub>Me, but no BuCO<sub>2</sub>Me. VII (10 g.) refluxed 10 hrs. with 30% NaOH yielded a mixture of VIII and 2,4-heptadienoic acid. CH<sub>2</sub>:CMeCH<sub>2</sub>CH:CHCO<sub>2</sub>Me (IX), b<sub>16</sub> 62-3°, n<sub>20D</sub> 1.4536, d<sub>20</sub> 0.9353, gave with concentrated NH<sub>3</sub> 10 days at 20° CH<sub>2</sub>:CMeCH:CHCH<sub>2</sub>CONH<sub>2</sub>, m. 86-7° (C<sub>6</sub>H<sub>6</sub>), λ 228 mμ (log ε 4.35). IX refluxed with 5% Et<sub>3</sub>N in MeOH yielded CH<sub>2</sub>:CMeCH:CHCH<sub>2</sub>CO<sub>2</sub>Me (X), b<sub>13</sub> 65-70°, n<sub>20D</sub> 1.4719, d<sub>20</sub> 0.9471, λ 227 mμ (log ε 4.26), containing Me<sub>2</sub>C:CHCH:CHCO<sub>2</sub>Me (XI). X added III to form a compound, m. 101-2° (C<sub>6</sub>H<sub>6</sub>); saponification of X with NaOH produced Me<sub>2</sub>C:CHCH:CHCO<sub>2</sub>H, m. 107-8°, λ 271 mμ (log ε 4.41), esterified to XI, b<sub>10</sub> 73-4°, n<sub>20D</sub> 1.5145, d<sub>20</sub> 0.9566, λ 273 mμ (log ε 4.41). Me<sub>2</sub>C:CHCH<sub>2</sub>CH:CHCO<sub>2</sub>Me (XII), b<sub>15</sub> 78-9°, n<sub>20D</sub> 1.4630, d<sub>20</sub> 0.9320, was saponified with 10% NaOH and esterified with MeOH to Me<sub>2</sub>C:CHCH:CHCH<sub>2</sub>CO<sub>2</sub>Me, b<sub>12</sub> 85-6°, n<sub>20D</sub> 1.4838, d<sub>20</sub> 0.9457, λ 238 mμ (log ε 4.35). XII and NH<sub>3</sub> formed Me<sub>2</sub>C:CHCH:CHCH<sub>2</sub>CONH<sub>2</sub>, m. 124-5°, λ 239 mμ (log ε 4.38). PhCH:CHCH<sub>2</sub>CH:CHCO<sub>2</sub>Me, b<sub>2.5</sub> 133-5°, refluxed with NaOH in H<sub>2</sub>O gave PhCH:CHCH:CHCH<sub>2</sub>CO<sub>2</sub>H (XIII), m. 108-9°, hydrogenated to 6-phenylcaproic acid; Me ester of XIII m. 46-8°, λ 285 mμ (log ε 4.42). Treatment of HO<sub>2</sub>CCH<sub>2</sub>CH:CHCH<sub>2</sub>CH:CHCO<sub>2</sub>H, m. 86°, with cold dilute NaOH gave (CH:CHCH<sub>2</sub>CO<sub>2</sub>H)<sub>2</sub>, m. 191-2°, while HO<sub>2</sub>CCH<sub>2</sub>CH<sub>2</sub>CH:CHCH:CHCO<sub>2</sub>H, m. 221-4°, was formed after reflux with 20% NaOH.

L2 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

TI Heterocyclics. XV. The synthesis of thiophene polyenes

AN 1952:32682 CAPLUS

DN 46:32682

OREF 46:5577a-i,5578a

TI Heterocyclics. XV. The synthesis of thiophene polyenes

AU Miller, Robert E.; Nord, F. F.

CS Fordham Univ., New York, NY

SO Journal of Organic Chemistry (1951), 16, 1380-8

CODEN: JOCEAH; ISSN: 0022-3263

DT Journal

LA Unavailable

AB A series of ω,ω'-di-2-thienyl- and ω-phenyl-ω'-2-

thienyl polyene hydrocarbons is prepared Refluxing 50 g. CH<sub>2</sub>(CO<sub>2</sub>H)<sub>2</sub>, 60 g.

PhCH<sub>2</sub>CHO, and 10 drops NH<sub>4</sub>Et<sub>2</sub> in 130 cc. absolute EtOH 6 h. gives 56%

PhCH:CHCH<sub>2</sub>CO<sub>2</sub>H (I), m. 85-6°. Treating 40 g. 2-

thiophenecarboxaldehyde (II), 30 cc. AcH, and 10 g. piperidine in 100 cc.

70% EtOH 8 days at 20° gives 36.5% 2-thiopheneacrolein (III), b<sub>5</sub>

108-12°. Gradually adding 14 g. (CO<sub>2</sub>Et)<sub>2</sub> in 10 cc. ether to an

ice-cold mixture of EtOK (from 7.5 g. K), 55 cc. ether, and 35 cc. EtOH and

then, after 15 min., 12 g. MeCH:CHCO<sub>2</sub>Et in 10 cc. ether with shaking, and

keeping the mixture 24 h. in an ice box gives 14 g. EtO<sub>2</sub>CCOCHKCH:CHCO<sub>2</sub>Et

which, dried and refluxed 1 h. with 40 cc. Ac<sub>2</sub>O, gives 8.9 g. di-Et

α-acetoxymuconate, EtO<sub>2</sub>CC(OAc):CHCH:CHCO<sub>2</sub>Et (IV), b<sub>2</sub> 150-3°.

Reduction of IV with 20 g. Al-Hg in 300 cc. moist ether 3 h. and

saponification of the

crude di-Et  $\alpha$ -acetoxy- $\beta$ -hydromuconate with KOH-MeOH gives 76% trans,trans-hydromuconic acid (V), m. 194-5°. Et 2-acetoxyhexatrienoate (10 g.) (obtained from Et sorbate), m. 46-6.5°, treated as above with (CO<sub>2</sub>Et)<sub>2</sub>, reduced with Al-Hg, and purified chromatog. gives 6.6 g. di-Et 1-acetoxy-2,4-hexadiene-1,6-dicarboxylate (VI), b<sub>1</sub> 158-60°. Saponification and reduction of VI gives 2,4-hexadiene-1,6-dicarboxylic acid (VII), m. 190-1°. Refluxing 20 g. PhCH:CHCHO (VIII), 24 g. (CH<sub>2</sub>CO<sub>2</sub>Na)<sub>2</sub> (IX), and 25 g. Ac<sub>2</sub>O 6 h. at 125-30° gives 7.1%  $\beta$ -cinnamylidenepropionic acid (X), m. 113-14°. With (CH<sub>2</sub>CO)<sub>2</sub>O in lieu of IX, the yield is only 1% X. Heating VIII, (CH<sub>2</sub>CO)<sub>2</sub>O, and Ac<sub>2</sub>O with 12 g. NEt<sub>3</sub> 6 h. at 180° gives 17% X. Adding a few cc. of 20 g. VIII and 30 g. CH<sub>2</sub>BrCH<sub>2</sub>CO<sub>2</sub>Me in 100 cc. C<sub>6</sub>H<sub>6</sub>-tetrahydrofuran (1:1) to 20 g. Mg and 0.5 g. HgCl<sub>2</sub>, heating the mixture on a steam bath to initiate the reaction, then adding the remainder of the solution over a period of 45 min. with gentle refluxing, refluxing the mixture 45 min., and working it up in the usual way give 33% X, m. 112.5-13°. Adding 10 g. PbO to 14 g. PhCH<sub>2</sub>CO<sub>2</sub>H (XI) and 11 g. II in 30 cc. hot Ac<sub>2</sub>O with shaking, refluxing the mixture 5 h., pouring the hot mixture into a beaker, keeping it overnight, and filtering it give 25% 1-phenyl-2-(2-thienyl)ethylene (XII), crystals from C<sub>6</sub>H<sub>6</sub>-EtOH, m. 110-11°. Adding dropwise 21 g. PhCH<sub>2</sub>Br in 50 cc. ether to activated Mg and 10 cc. ether, heating the mixture 15 min. on a steam bath, then adding dropwise 12 g. II, hydrolyzing the cooled mixture with dilute HCl, and extracting with ether give 45.3% XII, m. 111-11.5°. Treating 13.8 g. III and 14 g. XI with PbO in 30 g. Ac<sub>2</sub>O gives 29% 1-phenyl-4-(2-thienyl)-1,3-butadiene (XIII), m. 141.5-2°, which is also obtained in 26.4% yield when 11 g. II, 16.2 g. I, 12 g. PbO, and 35 g. Ac<sub>2</sub>O are refluxed. Cautiously heating 2.5 g. XIII and 4 g. maleic anhydride over the free flame 15 min. gives almost 100% of a phenyl(2-thienyl)- $\Delta^4$ -tetrahydrophthalic anhydride, m. 186.5-7.5°. III (13.8 g.), 16.2 g. I, and 15 g. PbO in 38 g. Ac<sub>2</sub>O give 30% 1-phenyl-6-(2-thienyl)-1,3,5-hexatriene (XIV), yellow crystals, m. 174-5°. Refluxing 1.8 g. X, 1.1 g. II, and 2.3 g. PbO in 3.1 cc. Ac<sub>2</sub>O gives 30% XIV. III (1.4 g.), 1.8 g. X, and 2.3 g. PbO in 3.3 cc. Ac<sub>2</sub>O give 18.9% 1-phenyl-8-(2-thienyl)-1,3,5,7-octatetraene, orange crystals, m. 206-7°. Refluxing 11 g. II and 14 g. 2-thiopheneacetic acid (XV) with 15 g. PbO in 30 g. Ac<sub>2</sub>O gives 27% 1,2-di-2-thienylethylene, tan crystals, m. 130.5-1°. Boiling 11.8 g. (CH<sub>2</sub>CO<sub>2</sub>H)<sub>2</sub>, 22 g. II, and 33 g. PbO 5 h. in 30 g. Ac<sub>2</sub>O gives 20.6% 1,4-di-2-thienyl-1,3-butadiene, m. 164.5-5°, which is also obtained in 22.4% yield when 14.2 g. XV and 13.8 g. III are refluxed 5 h. in 30 g. Ac<sub>2</sub>O with 15 g. PbO. Refluxing 7.3 g. II, 4 g. V, and 4.4 g. PbO in 9.2 g. Ac<sub>2</sub>O gives 12.8% 1,6-di-2-thienyl-1,3,5-hexatriene, yellow crystals, m. 198-9°. Refluxing 4 g. VII, 6.2 g. II, 4 g. PbO, and 9 g. Ac<sub>2</sub>O 5 h. gives 15.9% 1,8-di-2-thienyl-1,3,5,7-octatetraene, m. 229-30°, also obtained in 23.6% yield when 11.8 g. (CH<sub>2</sub>CO<sub>2</sub>H)<sub>2</sub>, 13.8 g. III, 15 g. PbO, and 30 g. Ac<sub>2</sub>O are refluxed 5 h. Refluxing 8 g. III, 4.1 g. V, 4.5 g. PbO, and 9 g. Ac<sub>2</sub>O 5 h. gives 15% 1,10-di-2-thienyl-1,3,5,7,9-decapentaene, crystals from CHCl<sub>3</sub>, m. 256-7°. In the same way, 6 g. VII, 11 g. III, 6 g. PbO, and 30 cc. Ac<sub>2</sub>O give 7.1% 1,12-di-2-thienyl-1,3,5,7,9,11-dodecahexaene, reddish crystals, m. 270-2°. Adding 20 g. II to 12.5 g. MeCH:CHCHO in 100 cc. 70% EtOH with strong cooling, then 10 g. C<sub>5</sub>H<sub>5</sub>N-AcOH (1:1) in a N atmospheric, keeping the mixture 8 days at 20°, filtering the precipitate, extracting it with EtOH-H<sub>2</sub>O, extracting the filtrate with ether, and evaporating the dried ether solution give 36% 5-(2-thienyl)-2,4-pentadienal, pale yellow oil, b<sub>2</sub> 134-6°, m. 44-5°, which is also obtained in 12% yield as a byproduct in the reaction of II with AcH. Recrystn. of the EtOH-H<sub>2</sub>O extract residue gives 15.6% 9-(2-thienyl)-2,4,6,8-nonatetraenal, orange crystals, m. 153-4°.

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COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

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22.13

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TOTAL

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